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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/878,923	06/13/2001	Mark D. Roberts	28549/165405	2854

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EXAMINER	
TRAN, KHANH C	
ART UNIT	**PAPER NUMBER**
2631	

DATE MAILED: 11/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/878,923	ROBERTS, MARK D.	
	Examiner	Art Unit	
	Khanh Tran	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,6-17,20,24-35,39,48-58 and 60* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *39 and 48-52* is/are allowed.

6)☒ Claim(s) *2,11-15,17,20,29-33,35,53-56,58 and 60* is/are rejected.

7)☒ Claim(s) *6-10,16,24-28,34 and 57* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06/13/2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The Amendment filed on 08/29/2005 has been entered. Claims 2, 6-17, 20, 24-35, 39, 48-58 and 60 are pending in this Office action.

Response to Arguments

2. Applicant's arguments with respect to claims 2, 6-17, 20, 24-35 and 53-58 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 11-12, 14-15, 17, 29-30, 32-33, 35, 53-56, 58 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoctor et al. U.S. Patent 6,810,087 B2.

Regarding claim 11, Hoctor et al. teaches the transmission and reception of multiple pulses in groups whose individual pulses are separated from each other by specific time intervals, known to receiver, see column 2 lines 1-20.

In column 1 lines 55-67, Hoctor et al. discloses a transmitted-reference (TR) technique defined as the transmission of two versions of a wideband carrier.

Referring to figure 6, in column 6 lines 20-40, Hoctor et al. teaches that timing pulses generated by the pseudo-random timing generator 61 are delayed first in delay 62 by time D1 and then in delay 63 by time D2. The original pulse from the timing generator 61 and each of the delays 62 and 63 are combined by OR gate 64 to generate a pulse clock. When each of the pulses in the pulse clock reaches the UWB pulse generator 65, they initiate an ultra-wideband pulse radio transmission via antenna 66. In light of that, Hoctor et al. incorporates time delays D1 and D2 into pulse train for transmission.

As recited above, the timing pulses generated by the pseudo-random timing generator 61 together with delays D1 and D2 corresponds to a delay code.

Hoctor et al. does not expressly teach inserting a time delay as result in a received signal quality measurement satisfying a received signal quality criterion as claimed.

However, in column 1 lines 29-55, Hoctor et al. discusses problems in conventional approach to implementing UWB communications systems. Successful operation of UWB communications systems requires accurate time synchronization be acquired and maintained between transmitter and receiver. Because the pulse duration is quite small in a UWB system, the synchronization requirements are quite stringent. As common knowledge of one of ordinary skill in the art at the time of the invention, a long acquisition time is a major risk in the use of conventional UWB communications,

resulting in degradation of received signal quality based on some required signal quality at the receiver. In view of the foregoing, one of ordinary skill in the art at the time of the invention would have recognized that Hoctor et al. teachings address the synchronization issue between transmitter and receiver.

Regarding claim 12, claim 12 is rejected on the same ground as for claim 11 because of similar scope.

Regarding claim 14, referring to figure 6, the sum of claims D1 and D2 is a constant value.

Regarding claim 15, column 2, lines 15-30, when two UWB TR signals are generated with *different delays*, it is possible, under certain conditions, to receive and demodulate both of them simultaneously, by applying two separate correlators to the same received signal. Thus, the use of different delays, each associated with a separate transmitter, result in the sum of the time delays of one transmitter different from that of other transmitter.

Regarding claim 17, referring to figure 6, D1 and D2 are time delay values.

Regarding claim 29, claim 29 is rejected on the same ground as for claim 11 because of similar scope.

Regarding claim 30, claim 30 is rejected on the same ground as for claim 29 because of similar scope.

Regarding claim 32, claim 32 is rejected on the same ground as for claim 14 because of similar scope.

Regarding claim 33, claim 33 is rejected on the same ground as for claim 15 because of similar scope.

Regarding claim 35, claim 35 is rejected on the same ground as for claim 17 because of similar scope.

Regarding claim 53, the pulses inherently have pulse amplitude.

Regarding claim 54, claim 54 is rejected on the same ground as for claim 53 because of similar scope.

Regarding claim 55, in column 2 lines 20-55, Hoctor et al. teachings apply to CDMA technique. Furthermore, because two UWB TR signals, each associated with a separate transmitter, are generated with different delays, Hoctor et al. teachings also apply time division multiple access technique.

Regarding claim 56, as recited in claim 11, timing pulses generated by the pseudo-random timing generator 61 are delayed first in delay 62 by time D1 and then in delay 63 by time D2.

Regarding claim 58, claim 58 is rejected on the same ground as for claim 17 because of similar scope.

Regarding claim 60, claim 60 is rejected on the same ground as for claim 29 in view of claim 55 because of similar scope.

4. Claims 2, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoctor et al. U.S. Patent 6,810,087 B2 as applied to claim 11 above, and further in view of Miller et al. US Patent 6,925,108 B1.

Regarding claim 2, Miller et al. does not discuss the received signal quality criterion as set forth in the application claim.

Miller et al. invention is directed to a method and a UWB receiver that includes a fast synchronization mechanism for rapidly recognizing and synchronizing with the strongest incoming signal; see column 3 lines 60-65. Because accurate synchronization would result in best received signal measurement, one of ordinary skill in the art at the time of the invention would have been motivated to incorporate Miller et al. teachings into Miller et al. invention.

Regarding claim 20, claim 20 is rejected on the same ground as for claim 2 because of similar scope.

5. Claims 13, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoctor et al. U.S. Patent 6,810,087 B2 as applied to claim 11 above, and further in view of Partyka US Patent 6,728,293.

Regarding claim 13, Hoctor et al. does not teach a linear feedback shift register pseudorandom number generator technique.

Nevertheless, Partyka invention employs transmitter including a pseudo random sequence generator or pseudo noise--PN generator, wherein a pseudo random sequence generator is based on a linear feedback shift register. As common knowledge of one of ordinary skill in the art, because pseudo random sequence generator is based on a linear feedback shift register, therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention that the pseudo-random timing generator can be modified to be based on linear feedback shift register.

Regarding claim 31, claim 31 is rejected on the same ground as for claim 13 because of similar scope.

Allowable Subject Matter

6. Claims 6-10, 16, 24-28, 34, 57 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claim 39 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 39, the claim is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose the claimed features "*wherein the time position is specified in accordance with a code element of a time-hopping code, wherein a delay code comprises one or more code elements that specify time delays to be inserted between any one of: two time-hopping code periods; two delay code periods, and two nested delay code periods*".

8. Claim 48 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 48, the claim is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose the claimed features "*wherein a delay code comprises one or more code elements that*

specify time delays to be inserted between any one of: two time-hopping code periods; two delay code periods, and two nested delay code periods".

9. Claims 49-52 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 49, the claim is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose the claimed features "*receiver measures a received signal quality for a plurality of time-varied signals based on the time delays and selects a received signal quality measurement that satisfies a received signal quality criterion; and said Transmitter delays a time-varied signal by an amount of time equal to a sum of time delays that satisfies the received signal quality criterion*".

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT

Khanh Cong Tran 11/09/2005

Examiner KHANH TRAN